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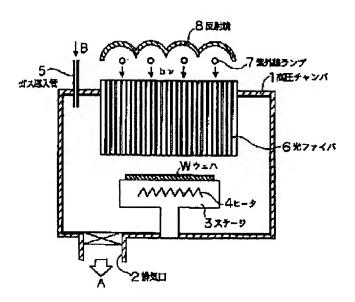
TITLE

: METHOD OF REFORMING

HIGH-DIELECTRIC CONST. FILM AND

**HEAT-TREATING APPARATUS USING** 

THE SAME



ABSTRACT: PROBLEM TO BE SOLVED: To bury a metal oxide high-dielectric const. film in holes formed due to oxygen lack and oxidation of C and H atoms, impurity in the film originating from a film forming gas, by a low-temp., little-damage and short-time heat treatment.

> SOLUTION: A gas, contg. O<sub>3</sub> at its partial pressure over the atmospheric pressure is introduced into a high-pressure chamber 1, and a wafer W set in a stage 3 is heated by a heater 4, while an ultraviolet ray hv is fed into the chamber from an ultraviolet lamp 7 through an optical fiber 6 directed to the end face of the wafer, to optically decompose O<sub>3</sub> near the wafer to create O-type active species. On the wafer W a high-dielectric contg. film is formed as a capacitor insulating film for DRAM. The heating tamp, is far lower than the durable temp. of a metal layer electrode of a capacitor. If the treating time is short, the active species can be efficiently penetrated at a high pressure to raise the specific dielectric const. ε of the film and lower the leak current.

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